

ABSTRACT

The invention relates to a GLP-1 derivative including an amino acid sequence of GLP-1 (7-35) having deletion, substitution
5 and/or addition of one or more amino acids and having
Waa-(Xaa)_n-Yaa (in which Waa is Arg or Lys, Xaa is Arg or Lys,
n is an integer of 0 to 14, and Yaa is Arg, Arg-NH₂, Lys, Lys-NH₂
or Hse) added to the C-terminus of the peptide having a GLP-1
activity. These derivatives are derivatives highly
10 absorbable via a mucous membrane. In the invention, the GLP-1
derivative can be conferred with resistance to dipeptidyl
peptidase IV by substituting amino acid 8 in its GLP-1 amino
acid sequence with Ser, or with resistance to trypsin by
substituting amino acids 26 and 34 with Gln and Asn, respectively.
15 The efficiency of absorption of the GLP-1 derivatives of
the invention via mucous membranes can be further improved by
preparing a composition using a charge-regulated fat emulsion
regulated to be negatively charged thereon.